Golovin P.V.

GOLOVIN, P.V.

Our suggestions. Sakh. prom. 31 no.10:20-21 O '57. (MIRA 11:1)

1. AN USSR. (Sugar industry--Terminology)

Golovin, P. V.

GERASIMENKO, A.A.; GOLOVIN, P.V.; ABRAMOVA, M.A.

Method for growing saccharose crystals in the laboratory. Sakh. prom. 31 no.11:71 N '57. (MIRA 11:1)

(Sugars)

GOLOVIN, P.V.

GOLOVIN, P.V.; ABRAMOVA, M.A.; GERASIMENKO, A.A.; SHAPOSHNIKOVA, Z.B.

Determining colloidal substances in juices and syrups. Sakh. prom. 31 no.12:51-52 D '57. (MIRA 11:1)

1. Kiyevskiy tekhnologicheskiy institut pishchevoy promyshlennosti imeni Mikoyana.
(Sugar--Analysis and testing) (Colloids)

FEDOROV, P.D.; STABNIKOV, V.N.; GLYBIN, I.P.; BELYAVSKIY, V.V.; BOYCHENKO,
N.G.; BUZYKIN, N.A.; GOLOVIN, P.V.; DEMCHUK, A.P.; ZHURA, K.D.;
KORCHINSKIY, A.I.; KURILENKO, O.D.; KLIMKO, N.G.; LITVAK, I.M.;
MAL'TSEV, P.M.; NIKOLAYCHUK, I.M.; NAUMOV, A.L.; POPOV, V.D.; RED'KO,
F.A.; SKOBLO, D.I.; KHRISTENKO, M.M.; TSYGANKOV, P.S.; SHLIPCHENKO,
Z.S.; SHVETSOV, P.D.

Gleb Mikhailovich Znamenskii; obituary. Sakh. prom. 31 no.12:68
D '57. (MIRA 11:1)

(Znamenskii, Gleb Mikhailovich, 1901-1957)

GOLOVIN, F.V.; GERASIMENKO, A.A.; SHAPOSHNIKOVA, Z.B.; ABRAMOVA, M.A.

Using bentonites for purifying juices of second carbonation.
Bent. gliny Ukr. no.2:195-198 '58. (MIRA 12:12)

1. Institut organicheskoy khimii AN USSR.
(Bentonite) (Sugar manufacture)

GRIVTSEVA, N.A.; GOLOVIN, P.V.

Two methods of purifying molasses sirups with ion-exchanging substances. Izv.vys.ucheb.zav.;pishch.tekh. no.5:100-104 '58. (MIRA 11:12)

1. Kiyevskiy tekhnologicheskiy institut pishchevoy promyshlennosti, kafedra tekhnologii sakharistykh veshchestv, i Institut organicheskoy khimii AN USSR, laboratoriya khimii uglevodov.

(Molasses) (Ion exchange)

GOLOVIN, P.V.; GRIVTSEVA, N.A.
[redacted]

Hydrolysis of corn starch in the presence of an acid and "Espatit-1" cationite. Trudy KTIPP no.19:9-13 '58. (MIRA 12:12)
(Ion exchange) (Corn starch)

GOLOVIN, P.V.

General coefficient of sugar diffusion during extraction from sugar beet shavings. Ukr. khim. zhur. 24 no.4:554-556 '58. (MIRA 11:10)

1. Institut organicheskoy khimii AN USSR.
(Extraction (Chemistry)) (Beets and beet sugar)

GOLOVIN, P.V.; GERASIMENKO, A.A.; ABRAMOVA, M.A.

Rate of crystallization of sucrose in green sirup at 70°, 80°, and 90°. Sakh. prom. 32 no.3:10-12 Mr '58. (MIRA 11:4)

1. Institut organicheskoy khimii AN USSR.
(Sucrose) (Crystallization)

GOLOVIN, P.V.; GERASIMENKO, A.A.; ABRAMOVA, M.A.

Rate of crystallization of saccharose at high temperatures. (MIRA 12:1)
Sakh. prom. 33 no.1:28-30 Ja '59.
(Sugar) (Crystallization)

GOLOVIN, P.V.; GERASIMENKO, A.A.

New layout for the purification of diffusion juice. Sakh. prom.
33 no.4:40-41 Ap '59. (MIRA 12:6)
(Sugar manufacture)

GOLOVIN, Pavel Vasil'yevich; GERASIMENKO, Aleksey Antonovich;
TRET'YAKOVA, Galina Sergeyevna; ROMINSKIY, I.R., doktor
tekhn.nauk, otv.red.; POKROVSKAYA, Z.S., red.izd-va;
MATVEYCHUK, A.A., tekhn.red.

[Saccharates and their use in industry] Sakharaty i ikh primenenie v promyshlennosti. Kiev, Izd-vo Akad.nauk USSR, 1960. 234 p. (MIRA 14:4)

(Sucrose)

GOLOVIN, P.V.; ABRAMOVA, M.A.; GERASIMENKO, A.A.

Reducing the rate of crystallization of saccharose in the green sirup at 90°. Sakh.prom. 34 no.3:13-15 Mr '[illegible]. 60.
(MIRA 13:6)

(Sugar manufacture)

GOLOVIN, P.V.; GERASIMENKO, A.A.; TRET'YAKOVA, G.S.

Precipitation of saccharose from solutions of molasses in a form of calcium trisaccharate. Sakh.prom. 34 no.10:29-30 O '60. (MIRA 13:10)

1. AN USSR.
(Sucrose) (Molasses)

GOLOVIN, P.V., otv. red.; SHAKIN, A.N., kand. tekhn. nauk, otv. red.; KAZAKEVICH, T.A., red.izd-va; RAKHLINA, N.P., tekhn. red.

[Development of the sugar industry; proceedings of the Conference on the Development of the Production Capacity of the Kharkov Economic Region] Voprosy razvitiia sakharnoi promyshlennosti; trudy. Kiev, Izd-vo Akad. nauk USSR. No.5. 1961. 101 p. (MIRA 14:7)

1. Konferentsiya po razvitiyu proizvoditel'nykh sil Khar'kovskogo ekonomicheskogo rayona. Khar(kov, 1958. 2. Chlen-korrespondent AN USSR (for Golovin)
(Kharkov Economic Region—Sugar industry)

GOLOVIN, P.V.; ABRAMOVA, M.A.; SHAPOSHNIKOVA, Z.B.; GERASIMENKO, A.A.;
DENISOVA, Ye. V.; TRET'YAKOVA, G.S.

Regeneration of ion exchangers. Sakh.prom. 35 no.6:13-16 Je '61.
(MIRA 14:6)

1. Institut organicheskoy khimii AN USSR.
(Sugar manufacture) (Ion exchange)

ZOTOV, V.P.; MAKHINA, M.M.; PARSHIKOV, M.Ya.; GAVRILOV, A.N.; SILIN, P.M.; GOLOVIN, P.V.; KHEYZE, N.V.; BUZANOV, I.F.; KHELEMSKIY, M.Z.; YAPASKURT, V.V.; SHARKO, A.P.; SANOV, N.M.; LITVAK, I.M.; IVANOV, S.Z.; LEPESHKIN, I.P.; KLEYMAN, B.M.; YEPISHIN, A.S.; GOLUB, S.I.; GERASIMOV, S.I.; GEUHE, V.R.; PASHKOVSKIY, F.M.; LITVINOV, Ye.V.; RENIN, G.S.; IVANOV, P.Ya.; VINOGRADOV, N.V.; PONOMARENKO, A.P.: ZHIDKOV, A.A.; KOVAL', Ye.T.; KARTASHOV, A.K.; NOVIKOV, V.A.

Sixtieth birthday of A.N.Shakin, Director of the Central Scientific Research Institute of the Sugar Industry. Sakh. prom. 35 no.7:33 Jl '61. (MIRA 14:7)
(Shakin, Anatolii Nikitovich, 1901-)
(Sugar industry)

GERASIMENKO, Aleksey Antonovich; ABRAMOVA, Mariya Aleksandrovna;
GOLOVIN, Pavel Vasil'yevich; SHAPOSHNIKOVA, Z.B., kand.
tekhn. nauk, otv. red.; POKROVSKAYA, Z.S., red.; DAKHNO,
Yu.B., tekhn. red.

[Ion exchange resins in the food industry] Ionoobmennye
smoly v pishchevoi promyshlennosti. Kiev, Izd-vo Akad. nauk
Ukrainskoi SSR. 1962. 271 p. (MIRA 16:7)
(Ion exchange resins) (Food industry)

GOLOVIN, P.V.

Equation of sugar extraction under industrial conditions.
Trudy KTIPP no.25:3-4 '62. (MIRA 16:5)
(Sugar manufacture)

GOLOVIN, P.V.

Determining the damping curve of the diffusion process in sugar extraction from sugar beet cossettes. Sakh.prom. 36 no.11:6-7 N '62. (MIRA 17:2)

1. AN UkrSSR.

KHOKHOL, Yelena Nikolayevna , prof.; GOLOVIN, Pavel Vasil'yevich,
prof.; BABKO, I.M.; BOREYKO, V.T.; DALETSKAYA, L.P.;
KASHKAREVA, Ye.I.; OTT, V.D.; STAL'NENKO, Ye.S.;
SHAPOSHNIKOVA, Z.B.; NARINSKAYA, A.L., tekhn. red.

[Ionized milk; its preparation and use] Ionitnoe moloko;
izgotovlenie i primenenie. [By] E.N.Khokhol i dr. 2 izd.
perer. i dop. Kiev, Gosmedizdat USSR, 1963. 150 p.
(MIRA 16:12)

1. Chlen-korrespondent AMN SSSR (for Khokhol). 2. Chlen-korrespondent AN Ukr.SSR (for Golovin).
(MILK—THERAPEUTIC USE) (INFANTS—NUTRITION)

GOLOVIN, P.V.; GRIVTSEVA, E.A.

Rapid method for determining the chromaticity of granulated sugar. Trudy KTIPP no.27:42-46 '63. (MIRA 17:5)

Deceased.

SHAPOSHNIKOVA, Z.B.; ABRAMOVA, M.A.; GOLOVIN, P.V.; PETRENKO, L.S.;
GERASIMENKO, A.A.

Conditions of the performance of ion exchangers in juice
purification. Sakh. prom. 37 no.8:38-41 Ag '63. (MIRA 16:8)

1. Institut mikrobiologii AN UkrSSR.
(Sugar manufacture)
(Ion exchanging substances)

GOLOVIN, Pavel Vasil'yevich (Deceased) author
Chemistry + technology of sugar beet production
Kiev Naukova dumka 1964 728p.
(MIRA 18:2)

GOLOVIN, Pavel Vasil'yevich [deceased]; GERASIMENKO, Aleksey Antonovich; SHAPOSHNIKOVA, Z.B., kand. tekhn. nauk, otv. red.

[Chemistry and technology of sugar beet production] Khimiia i tekhnologiia sveklosakharnogo proizvodstva. Kiev, Naukova dumka, 1964. 728 p. (MIRA 18:2)

BUSHKOVA, A.S., kand. tekhn. nauk; SHCHERBAK, I.Ye., agronom;
KOSHEVEROVA, Ye.P.; SHERSTYUKOVA, S.A., inzh.; GOLOVIN, P.V.,
doktor tekhn. nauk [deceased]

Chemical analysis of sugar sorghum stalks. Pishch. prom.
no.2:21-25 '65. (MIRA 18:11)

1. Institut organicheskoy khimii AN UkrSSR.

GOLOVIN, S.; SOLOV'YEV, I.; CHUKIN, Ye.

Over-all mechanization of the processing of stomach contents.
Mias. ind. SSSR 29 no.2:15 '58. (MIRA 11:5)

1.Rostovskiy myasoptitsetrest (for Golovin). 2.Spetsial'noye konstruktorskoye byuro Glavprodmasha (Solov'yev, Chukin).
(Packing houses--By-products)

GOLOVIN, S.I.

Cleaning a glazed abrasive cloth. Der. prom. 8 no.5:20 My '59.
(MIRA 12:7)

1. Murmanskaya mebel'naya fabrika.
(Grinding and polishing)

18 (7)

AUTHORS: Krishtal, M. A., Golovin, S. A. SOV/163-59-2-30/48

TITLE: The Relative Fading of Torsional Oscillations in the Thermally Treated Steels 50A and U7A (Otnositel'noye zatukhaniye krutil'nykh kolebaniy v termicheski obrabotannykh stalyakh 50A i U7A)

PERIODICAL: Nauchnyye doklady vysshey shkoly. Metallurgiya, 1959, Nr 2, pp 173-175 (USSR)

ABSTRACT: The authors investigate the internal microplastic friction in the hardened and drawn steels mentioned in the title in order to clarify the connection between metal structure and internal friction in carbon steels. Products of these sorts of steel (springs) are exposed to rapidly changing loads. The composition of the two steel types is indicated in a table. The internal microplastic friction was determined by the fading of the free torsional oscillations which were recorded by a special apparatus with tensometric recording of the vibrogram. The results for the two steel types are represented in figures 1 and 2. They show the dependence of the torsional oscillations on the voltage applied to the periphery of the sample. Figures 3 and 4 show the influence of various drawing temperatures.

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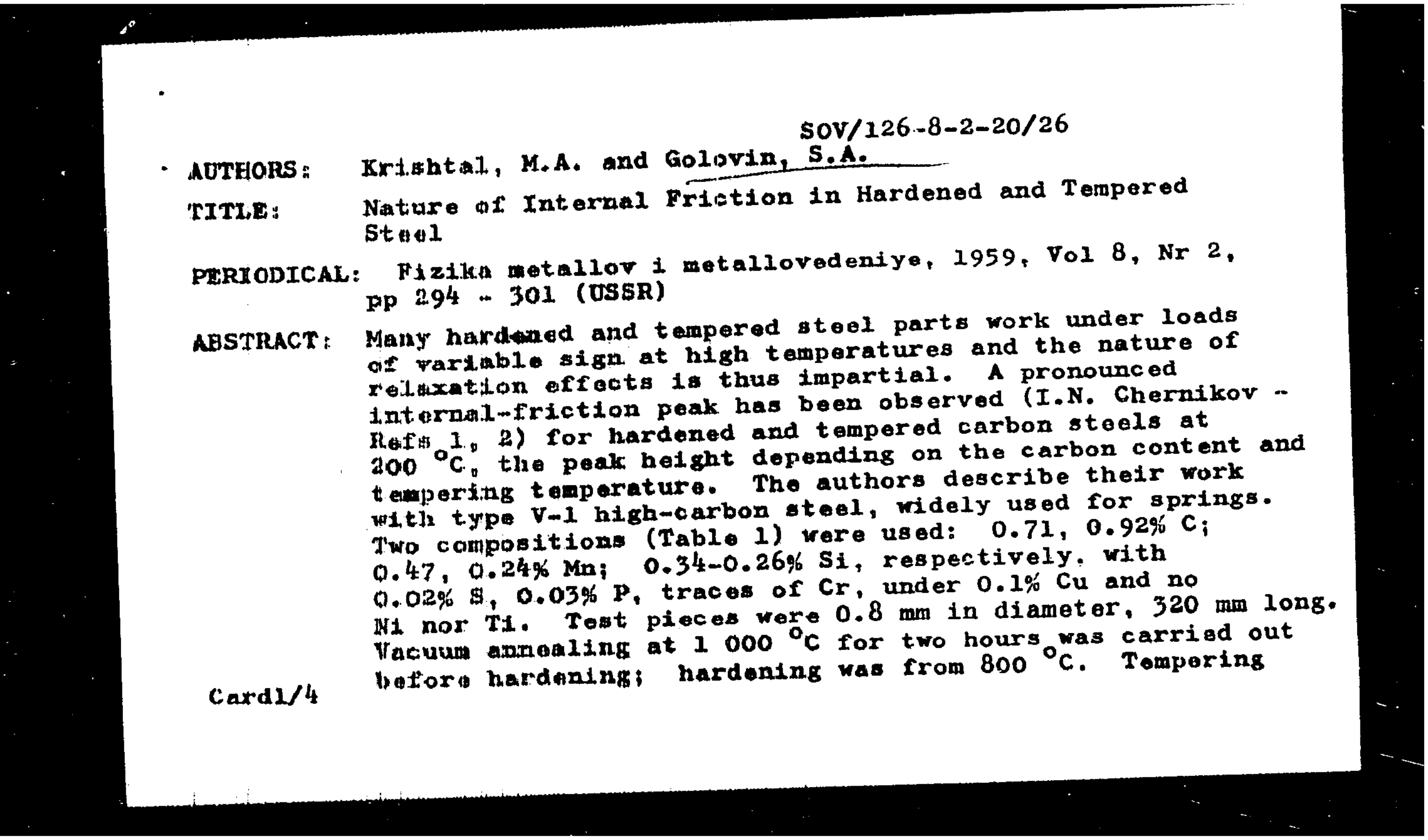
The Relative Fading of Torsional Oscillations in the Thermally Treated Steels 50A and U7A SOV/163-59-2-30/48

At drawing temperatures between 450 and 550°, a considerable reduction of fading occurs. It is explained by a splintering of the blocks of the α-phase in drawing, as was also ascertained in the investigations by K. F. Starodubov and A. A. Sazonova (footnote on p 174). The fading of the oscillations in hardened steel drawn at a low temperature is mainly influenced by the austenite component whereas at drawing temperatures above 300° the ferrite structure becomes decisive. There are 4 figures, 1 table, and 2 Soviet references.

ASSOCIATION: Tul'skiy mekhanicheskiy institut (Tula Institute of Mechanics)

Card 2/2



SOV/126-8-2-20/26

AUTHORS: Krishtal, M.A. and Golovin, S.A.

TITLE: Nature of Internal Friction in Hardened and Tempered Steel

PERIODICAL: Fizika metallov i metallovedeniye, 1959, Vol 8, Nr 2, pp 294 - 301 (USSR)

ABSTRACT: Many hardened and tempered steel parts work under loads of variable sign at high temperatures and the nature of relaxation effects is thus impartial. A pronounced internal-friction peak has been observed (I.N. Chernikov - Refs 1, 2) for hardened and tempered carbon steels at 200 °C, the peak height depending on the carbon content and tempering temperature. The authors describe their work with type V-1 high-carbon steel, widely used for springs. Two compositions (Table 1) were used: 0.71, 0.92% C; 0.47, 0.24% Mn; 0.34-0.26% Si, respectively, with 0.02% S, 0.03% P, traces of Cr, under 0.1% Cu and no Ni nor Ti. Test pieces were 0.8 mm in diameter, 320 mm long. Vacuum annealing at 1 000 °C for two hours was carried out before hardening; hardening was from 800 °C. Tempering

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SOV/126-8-2-20/26

Nature of Internal Friction in Hardened and Tempered Steel

was effected for one hour at temperatures of 100, 200, 250, 350, 450, 500 and 700 °C. Internal friction was measured on a type RKF-MIS-1 vacuum torsional installation at frequencies of 1.33 and 2.08 c.p.s. Internal friction as functions of temperature for various tempering temperatures is given in Figures 1 and 2 for the 0.71 and 0.92% C specimens. The peaks lie between 220 - 260 °C, decreasing in value with rising tempering temperature and with falling carbon content (as shown by the data in Table 2, derived from the authors' and published (Ref 1) data and in Figure 3). The temperature of the peak rises linearly with increased carbon content (Figure 4). In Figure 5, the internal-friction peak values are shown to be related linearly both to total carbon percentage and to percentage of residual austenite (obtained from the work of A.P. Gulyayev - Ref 4). The authors have calculated values of the diffusion coefficient and activation energy corresponding to the positions of internal-friction peaks. For activation-energy determinations additional internal-friction measurements were

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Nature of Internal Friction in Hardened and Tempered Steel

carried out at 2.08 c.p.s. Figures 6 and 7 show internal friction plotted against temperature for the 0.71 and 0.92% C steels, respectively, hardened from 800 °C. Curves 1 and 2 in Figure 6 correspond to frequencies of 1.33 and 1.81 c.p.s. and to frequencies of 1.33 and 2.08 in Figure 7, a second pair of curves in the latter corresponding to steel tempered at 250 °C. Tables 3, 4, and 6 show diffusion-coefficient values for carbon in the 0.92- and 0.71%-C carbon steels, respectively; Tables 5 and 6, based on published (Ref 1) data, give the values for steels with 0.58 and 0.46% C, respectively. The results agree with published (Ref 8) indications that the rate of diffusion of carbon is less in austenite subjected to hardening than in austenite not so treated. Diffusion-coefficient values measured by the internal-friction method for hardened steel tempered at low temperatures agree with those found metallographically in austenite obtained from the hardened state. As a further

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SOV/126-8-2-20/26

Nature of Internal Friction in Hardened and Tempered Steel

check the internal friction of 0.92% C steel subjected to double hardening from 800 °C was determined, showing a displacement of the internal-friction peak towards higher temperatures (Figure 8 - Curve 2 compared with Curve 1).

Professor B.N. Finkel'shteyn, Yu.V. Piguzov, L.F. Usova and I.N. Chernikova helped in internal-friction measurements. There are 8 figures, 7 tables and 10 references, of which 8 are Soviet, 1 English and 1 international.

ASSOCIATION: Tul'skiy mekhanicheskiy institut (Tula Mechanical Institute)

SUBMITTED: February 28, 1958

Card 4/4

SOV/126-8-2-21/26

AUTHORS: Krishtal, M.A. and Golovin, S.A.

TITLE: Contribution on the Nature of Relative Damping of Oscillation in Hardened and Low-tempered Carbon Steel

PERIODICAL: Fizika metallov i metallovedeniye, 1959, Vol 8, Nr 2, pp 302 - 308 (USSR)

ABSTRACT: The authors' previous (Refs 1, 2) measurements of micro-plastic internal friction in heat-treated type 50A and U7A steels and of internal-friction relaxation in U7A and U9A steels showed the great effect of residual austenite in hardened and low-tempered specimens on the damping capacity of the steel. Their present investigation, aimed at further examination of this postulate, was carried out with 50A and U7A steels (widely used for machine parts subjected to vibration in service) of the following respective percentage composition: 0.49, 0.70 C: 0.34, 0.23 Mn; 0.54, 0.18 Si; 0.024, 0.021 S; 0.019, 0.026 P; 0.19, traces Cr. An apparatus (Figure 1) was provided with tensometric recording of vibration patterns and with a furnace

Card1/3

SOV/126-8-2-21/26

Contribution on the Nature of Relative Damping of Oscillation in Hardened and Low-tempered Carbon Steel

enabling the 7-mm diameter test pieces to operate at up to 360 °C with 10° intervals in a protective atmosphere. Before hardening (from 800 °C for U7A and from 860 °C for 50A steel) specimens were annealed for one hour; hardening was followed by tempering for one hour at different temperatures. The effect of repeated-stressing treatment on relative damping for the two steels is shown in Figures 2 and 3. In the higher-carbon steel repeated-stress treatment gave reduced relative damping at higher stresses. The treatment did not increase hardness. Holding in liquid nitrogen was found to reduce relative damping for tempering temperatures up to 200 °C (Figures 4 and 5 show this property as a function of stress for various heat-treatment histories for the two steels). Repeated hardening also reduced relative damping (Curve 2 compared with Curve 1 in Figure 6). A maximum of relative damping was found for U7A steel at about 290 °C in tests with continuous heating (Figure 7). The authors used their own and published (Ref 1) data to calculate the carbon

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SOV/126-8-2-21/26

Contribution on the Nature of Relative Damping of Oscillation in Hardened and Low-tempered Carbon Steel

diffusion coefficient: diffusional relaxation in austenite evidently plays some part. Their results indicate that residual austenite has a considerable influence on the damping properties of the hardened and low-tempered steels investigated (Figure 8 shows relative damping at various stresses plotted against time of tempering at 200 °C for U7A steel). There are 8 figures, 1 table and 9 references, 7 of which are Soviet and 2 English.

ASSOCIATION: Tul'skiy mekhanicheskiy institut (Tula Mechanical Institute)

SUBMITTED: August 22, 1958

Card 3/3

GOLOVIN, S. A., Cand Tech Sci - (diss) "Damping of vibration in heat-treated steel." Moscow, 1960. 18 pp, including cover; (Ministry of Higher and Secondary Specialist Education RSFSR, Moscow Order of Labor, Red Banner Institute of Steel im I. V. Stalin); 120 copies; free; (KL, 19-60, 133)

GOLOVIN, S.A.

Strength of certain carbon steels. Izv.vys.ucheb.zav.; chern. met. no.5:146-149 '60. (MIRA 13:6)

1. Tul'skiy mekhanicheskiy institut.
(Steel--Fatigue)

Golovin, S.A.

S/126/60/010/02/015/020
E021/E335

AUTHORS: Piguzov, Yu.V., Krishtal, M.A. and Golovin, S.A.

TITLE: The Nature of the Maximum of Internal Friction in Steel After Thermal Treatment 26

PERIODICAL: Fizika metallov i metallovedeniye, 1960, Vol. 10, No. 2, pp 285 - 290

TEXT: Experiments were carried out on three steels - U7A, U9A and U12A - the compositions of which are given in Table 1. Measurements of internal friction were taken on a relaxator at a frequency of 1 cps. Results for two steels are given in Fig. 1, where the internal friction is plotted against temperature. The curves contain the usual maxima at 200 °C. The curves with the higher peaks are for the steel with the greater amount of carbon. The absolute values of the peaks are given in Table 2. Working in the cold leads to a decrease in the value of the peak corresponding to the decrease in the retained quantity of austenite. Fig. 2 shows the internal friction - temperature curves for U9A steel after quenching from sub-critical temperatures (720 °C and 670 °C). A low maximum is obtained at 200 °C, much less than that after quenching from the austenitic condition. Thus, the 200 °C peak can be explained by two phenomena taking

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S/126/60/010/02/015/020
E021/E335

The Nature of the Maximum of Internal Friction in Steel After Thermal Treatment

place simultaneously: diffusion of carbon atoms in the retained austenite and migration of carbon atoms to the dislocation regions forming on account of the martensitic transformation and thermal stresses. Further experiments were carried out on armco iron containing 0.019% carbon after 25% and 75% deformation. Fig. 3 shows the curves obtained. Deformation of 25% leads to two peaks at 40 and 200 °C. 75% deformation gives one peak at 200 °C. The disappearance of the first peak can be explained by migration of carbon atoms in the alpha-iron to more energetic positions - in dislocations. The peak at 200 °C is much lower than for quenched steels because of the smaller amount of austenite.
There are 2 tables, 3 figures and 10 references: 2 German, 2 English and 6 Soviet.

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S/126/60/010/02/015/020
E021/E335

The Nature of the Maximum of Internal Friction in Steel After Thermal Treatment

ASSOCIATIONS: Tul'skiy mekhanicheskiy institut
(Tulsk Mechanical Institute
Moskovskiy institut stali im. I.V. Stalina
Moscow Institute of Steel im. I.V. Stalin

SUBMITTED: Fenruary 18, 1960

Card 3/3

GOLOVIN, S. A.

PHASE I BOOK EXPLOITATION SOV/5303

Nauchno-tekhnicheskoye soveshchaniye po dempfirovaniyu kolebaniy. Kiyev, 1958.

Trudy Nauchno-tekhnicheskogo soveshchaniya po dempfirovaniyu kolebaniy, 17 - 19 dekabrya 1958 g. (Transactions of the Scientific and Technical Conference on the Damping of Vibrations, Held 17 - 19 December, 1958) Kiyev, Izd-vo AN UkrSSR, 1960. 178 p. 2,000 copies printed.

Sponsoring Agency: Akademiya nauk Ukrainskoy SSR. Institut metallokeramiki i spetsial'nykh splavov.

Editorial Board: I. N. Frantsevich, G. S. Pisarenko (Resp. Ed.), G. V. Samsonov, V. V. Grigor'yeva, and A. P. Yakovlev; Ed. of Publishing House: I. V. Kisina; Tech. Ed.: A. A. Matveychuk.

COVERAGE: The book contains 27 articles dealing with principal results of theoretical and experimental investigations of energy dissipation in mechanical vibrations carried out in the Soviet Union from 1956 to 1958. Problems of energy dissipation in materials and factors affecting it are discussed. Purportedly new methods of experimental investigation of damping of vibrations are presented. Attention is given to the recently developed nonlinear theory of calculating vibrations in elastic systems, taking energy dissipation into account. Attempts to analyze internal energy dissipation in materials using methods of mathematical statistics are discussed. Some articles deal with engineering problems in dynamics, in which damping is claimed to play a highly substantial part. Aspirant N. I. Mukhin, of the Kiyev Polytechnic Institute, is mentioned. References accompany some of the articles.

TABLE OF CONTENTS:

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Krishtal, M. A., and S. A. Golovin. Special Features of Damping of Vibrations in Ferromagnetic Specimens Being Tested 140

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Bratus', Ya. A., [Assistant], and G. S. Pisarenko. Research on the Damping of Vibrations in Bundles of Rods 151

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AVAILABLE: Library of Congress

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GOLOVIN, S. A.

PHASE I BOOK EXPLOITATION SOV/5305

Moscow. Institut stali

Relaksatsionnyye yavleniya v metallakh i splavakh; trudy Mezhvuzovskogo soveshchaniya (Relaxation Phenomena in Metals and Alloys; Transactions of the Inter-Institute Conference) Moscow, Metallurgizdat, 1960. 326 p.

Sponsoring Agency: Ministerstvo vysshego i srednego spetsial'nogo obrazovaniya RSFSR and Moskovskiy institut stali imeni I.V. Stalina.

Ed. (Title page): B.N. Finkel'shteyn; Ed. of Publishing House: Ya.I. Levit; Tech. Ed.: A.I. Karasev.

PURPOSE: This collection of articles is intended for personnel in scientific institutions and schools of higher education and for physical metallurgists and physicists specializing in metals. It may also be useful to students of these fields.

COVERAGE: The collection contains results of experimental and theoretical investigations carried out by schools of higher education and scientific research institutions in the field of the relaxation phenomena in metals and alloys. Several articles are devoted to the investigation—by the internal-friction method—of the decomposition of supersaturated solid solutions. Also analyzed are the defects of the crystalline lattice, plastic deformations, high-temperature behavior of alloys, and creep. Problems of the relation between internal friction and temper brittleness, the use of the method of internal friction in the investigation of powder-metallurgy products, and the mechanics of impact fatigue are discussed. The collection also contains articles on the damping characteristics of materials, elastic after-effect, and the new slow-detection method. No personalities are mentioned. References follow most articles. There are 366 references: 192 Soviet and 174 non-Soviet.

Baris, E.A. [Moscow Steel Institute]. On Dispersion Correlations in the Theory of Elastic Relaxation 55

Starodubov, K.F., and A.A. Bazenova [Dnepropetrovskiy metallurgicheskiy institut (Dnepropetrovsk Metallurgical Institute)]. Effect of the Tempering Temperature After Quenching and the Temperature of Isothermal Processing on the Vibration Damping in the Silicon Spring Steel 58

Pigusov, Yu.V., M.P. Alekseyenko, and L.S. Fedotova [Moscow Steel Institute and Vsesoyuznyy institut aviatsionnykh materialov (All-Union Institute of Aviation Materials)]. Effect of the Temper Brittleness of High-Chromium Steels on the Internal Friction 64

Chernikova, I.N. [Moscow Steel Institute]. Study of the Tempering of Carbon Steels by the Internal-Friction Method 85

Krishtal, M.A., and S.A. Golovin [Tul'skiy mekhanicheskiy institut (Tula Mechanical Institute)]. On the Problem of the Internal Friction in Hardened and Tempered Steel 95

Krishtal, M.A., and S.A. Golovin [Tula Mechanical Institute]. Relative Damping of Torsional Vibrations in Heat-Treated U7A steel 101

Mišek, Karel, and Karel Toman [Institute of Technical Physics of the Czechoslovak Academy of Sciences]. Aging of the Aluminum-Silver Alloy 104

Mal'tseva, G.K., and V.S. Postnikov [Kemerovskiy pedagogicheskiy institut (Kemerovo Pedagogical Institute)]. Decomposition of the Supersaturated Beryl-Copper Solid Solution 109

Polyakov, S.N. [Institut chernoy metallurgii AN UkrSSR (Institute of Ferrous Metallurgy of the Academy of Sciences UkrSSR)]. Behavior of Carbon in α-Iron Alloyed With Manganese and Molybden 118

Livshits, B.G., Yu.S. Avraamov, V.B. Osvenskiy, G.O. Meshennaya, and L.N. Belyakov [Moscow Steel Institute]. Internal Friction of Metastable Solid Solutions 126

Usova, L.F. [Moscow Steel Institute]. Investigation of the Carbon Influence on the Properties of Low-Carbon Steel by the Method of Measuring Internal Friction 138

Ashmarin, G.M. [Moscow Steel Institute]. The High-Temperature Internal Friction of Iron-Vanadium Alloys 146

2/

S/137/61/000/003/058/069
A006/A101

AUTHOR: Golovin, S. A.

TITLE: Internal friction in quench-hardened and tempered У8А (U8A) steel

PERIODICAL: Referativnyy zhurnal. Metallurgiya, no. 3, 1961, 32, abstract 3Zh206 ("Sb. tr. Tul'sk. mekhan. in-ta", no. 15, 1960, 113-119)

TEXT: Investigations were made with wire specimens of 0.8 mm in diameter and 320 mm length. Prior to the tests the specimens were subjected to quench-hardening from 800°C and tempering for 1 hour at 150, 250, 350 and 450°C. Internal friction was measured on a torsion pendulum at an oscillation frequency of 1.33 cycles/sec. The existence of peaks of internal friction in steel quench-hardened and tempered at different temperatures was revealed in the 230°C range, which is in agreement with data obtained previously. The dependence of the height of internal friction peaks on the tempering temperature is linear for the investigated steels. It is pointed out that the internal friction peaks observed in U8A steel are connected with the diffusion of C atoms in austenite caused by stresses. To increase the rigidity of U8A steel springs it is recommended to subject them to cold treatment which must lead to reduction of the residual austenite and consequently, to a lesser relaxation of stresses. There are 9 references. L.G.

[Abstractor's note: Complete translation.]

Card 1/1

21641
S/137/61/000/003/059/069
A006/A101

18 8100 1138, 1454, 1418, 1413

AUTHOR: Golovin, S. A.

TITLE: Relative damping of torsion oscillations in heat treated У10А (U10A) and 9ХС (9KhS) steels

PERIODICAL: Referativnyy zhurnal. Metallurgiya, no. 3, 1961, 33, abstract 3Zh208 ("Sb. tr. Tul'sk. mekhan. in-ta", no. 15, 1960, 131-135)

TEXT: The author studied the effect of residual austenite on internal friction of quench-hardened and low-tempered U10A and 9KhS steels. The determination of internal friction was carried out by measuring the relative damping of the torsion oscillations of specimens on a device with tensiometric recording of the operational vibrograms. The tests were made on 7 mm diameter specimens of 50 mm length. Prior to quench-hardening full annealing of all the specimens was performed for 1 hour. The annealed specimens were quench-hardened (U10A steel from 800°C, 9KhS steel from 820°C) and tempered for 1 hour at 100, 200, 300, 400, 500 and 600°C. It is shown that the hardness of U10A steel specimens increases with tempering up to 200°C. For 9KhS steel specimens maximum hardness is observed at tempering up to 300°C. At 200°C the hardness of 9KhS specimens approaches maxi-

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21641

S/137/61/000/003/059/069
A006/A101

Relative damping of torsion oscillations ...

mum values. The effects obtained are connected with the decomposition of residual austenite at the given tempering temperatures and the formation of tempered martensite. In alloyed 9KhS steel, Cr, and in a lesser degree Si, inhibit the decomposition of residual austenite and martensite, so that the transformation intervals during tempering are shifted toward the higher temperature range in comparison with carbon steel. With a higher C content in quench hardened specimens the relative damping of oscillations increases too; this is in agreement with a higher amount of residual austenite in steel with a higher carbon content. Thus the residual austenite exerts a substantial effect on internal friction of quench-hardened and tempered steels. It is shown that the treatment of such steels, entailing a reduced content of residual austenite in them (cold treatment, oil quenching, etc.) raises the rigidity of specimens. This is important for the manufacture or parts undergoing vibrations during operation. There are 6 references.

L. G.

[Abstractor's note: Complete translation.]

Card 2/2

SHUSHANIYA, V.R.; GOLOVIN, S.A.

Effect of the temperature of hardening on the internal friction in carbon steel. Fiz. met. i metalloved. 11 no. 5:809-811 My '61.
(MIRA 14:5)

1. Tul'skiy mekhanicheskiy institut.
(Steel—Hardening) (Internal friction)

GOLOVIN, S.A.; SARKISYAN, D.A.

Strain aging of low carbon steel. Fiz. met. i metalloved. 13 no.6:924-926 Je '62. (MIRA 15:7)

1. Nauchno-issledovatel'skiy i konstruktorskiy institut ispytatel'nykh mashin, priborov i sredstv izmereniya mass.
(Steel—Cold working)

18 7100,

40560

S/126/62/014/002/014/018
E073/E192

AUTHORS: Baranova, V.I., and Golovin, S.A.

TITLE: Influence of the quenching temperature on the internal friction and the electric resistance of iron-molybdenum alloys

PERIODICAL: Fizika metallov i metallovedeniye, v.14, no.2, 1962, 296-298

TEXT: In an earlier paper the authors and their team studied the influence of the quenching temperature of a chromium-alloyed alloy on the internal friction and the specific electric resistance. In this paper the authors studied these characteristics for alloys with molybdenum contents varying between 0.78 and 8.37% wt. and 0.019-0.037% wt.C. The internal friction and the electric resistance were measured on wire specimens 160 mm long and 0.7 mm in diameter. The curves of the internal friction as a function of the damping temperature for a specimen with 0.78% wt. Mo and 0.019% wt. C show a peak at a temperature of 36 °C. The magnitude of the peak decreases with increasing Mo content. Heating of Fe-Mo alloys to 1050 °C brings about intensive dissolution of carbides,

Card 1/3

with the carbon passing into the solid solution. Heating of the alloy prior to quenching to temperatures exceeding 1050 °C leads to an appreciable migration of the carbon atoms into the forming vacancies. For equal alloying in terms of atomic percentage the relaxation effects of internal friction are considerably less pronounced for Fe-Mo alloys than for Fe-Cr alloys. This is attributed to the fact that molybdenum is a more intensive carbide-forming element than chromium. Fe-Mo alloys with over 3.67% do not show a low temperature peak but peaks are observed in the temperature ranges 230 and 390 °C. The electric resistance increased with the molybdenum concentration and was found to be a function of the quenching temperature in the same way as internal friction. Alloys containing 0.78, 1.02, 3.67 and 5.67% Mo, had electric resistance decreasing with increasing quenching temperature, the minimum being 1050-1100 °C and caused by the dissolution of carbides and homogenisation of the alloy. Further increase in the quenching temperature led to an increase of the electric resistance due to the influence of vacancies. The electric resistance of alloys containing over 5.67% Mo increased with

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Influence of the quenching ... S/126/62/014/002/014/018
E073/E192

increasing quenching temperature, reaching a maximum on heating up to 1100 °C, and then decreasing. This characteristic of the curves requires clarification.
There are 3 figures.

ASSOCIATION: Tul'skiy mekhanicheskiy institut
(Tula Mechanical Institute)

SUBMITTED: September 4, 1961

Card 3/3

S/126/62/014/006/013/020
E193/E383

AUTHORS: Krishtal, M.A. and Golovin, S.A.

TITLE: Internal friction of hardened steel

PERIODICAL: Fizika metallov i metallovedeniye, v. 14, no. 6, 1962, 913 - 916

TEXT: A widely held opinion is that the internal-friction peak observed at about 200 °C in heat-treated or work-hardened steel is associated with the diffusion of interstitials (mainly carbon and nitrogen) to the regions of dislocations formed during mechanical or thermal treatment. Since the increase in strength due to either treatment is determined mainly by the density and mobility of dislocations, there should be a direct relationship between the characteristics of the internal-friction peak at 200 °C and the mechanical properties of hardened steel. It was in order to check this hypothesis that the present investigation was undertaken. Using both published and original experimental data, the present authors have constructed curves showing the increase in the UTS of steels 5, 50 and У7А (U7A) as a function of either the height or the area of the 200 °C peak. Typical

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Internal friction ....

S/126/62/014/006/013/020
E193/E383

results, which confirmed the authors' hypothesis, are shown in Figs. 4 and 5. In Fig. 4, the increase in the UTS ($\Delta\sigma$, kg/mm^2) of steel 5 is plotted against the height ($Q^{-1}_{200^\circ C}$) of the peak studied; the experimental points, denoted by circles, triangles and dots, relate to specimens hardened, respectively, by a) quenching and furnace-tempering; b) wire-drawing and c) quenching and tempering by passage of electric current. In Fig. 5, $\Delta\sigma$ (kg/mm^2) of the same specimens of steel 5 is plotted against the area (S, mm^2) of the internal-friction peak. The most interesting fact revealed by these graphs is that points obtained for specimens hardened by thermal and mechanical treatment lie on the same curves. This indicates that the nature of the hardening processes in both types of treatment are basically the same and throws new light on the mechanics of thermomechanical treatment. There are 5 figures.

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ASSOCIATION: Tul'skiy mekhanicheskiy institut
(Tula Mechanics Institute)

SUBMITTED: May 25, 1962

Card 2/3

S/0000/63/000/000/0353/0356

ACCESSION NR: AT4040403

AUTHOR: Krishtal, M. A.; Golovin, S. A.; Pudoveyeva, V. P.

TITLE: Energy dissipation in some alloys at low temperatures

SOURCE: Nauchno-tekhnicheskoye soveshchaniye po voprosam kolebaniy s uchetom rasseyaniya energii. 4th, 1962. Rasseyaniye energii pri kolebaniyakh uprugikh sistem (Energy dissipation during vibrations of elastic system); trudy* soveshchaniya. Kiev, Izd-vo AN UkrSSR, 1963, 353-356

TOPIC TAGS: steel No. 5, steel 35 GS, low carbon steel, cold brittleness threshold, low temperature energy dissipation, damping decrement, impact toughness

ABSTRACT: Damping decrements in flat samples of steel No. 5 (vacuum annealed 1 hr. at 1000C), steel 35GS (normalized) and a low carbon steel (0.09% C, hardened, deformed 15%) were measured in relation to temperatures ranging from -100 to 20C (methodology described). Analysis of the results obtained, placed the cold brittleness thresholds of the three named alloys at -75 to -90, -58 to -85 and -30 to -75C, respectively. Parallel measurement of impact toughness produced closely corresponding results, especially for unnotched

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ACCESSION NR: AT4040403

samples; the damping decrement method is therefore recommended for measurements of cold brittleness thresholds. Orig. art. has: 4 figures.

ASSOCIATION: none

SUBMITTED: 23Nov63 DATE ACQ: 28May64 ENCL: 00

SUB CODE: MM NO REF SOV: 002 OTHER: 000

Card 2/2

KUROCHKA, N.V.; GOLOVIN, S.A.

Installing supports for an overhead contact network from the track. Transp. stroi. 13 no.7:9-10 Jl '63. (MIRA 16:9)

(Electric railroads— Poles and towers)

KRISHTAL, M.A.; FIRSANOV, I.A.; VAYNER, Yu.I.; GOLOVIN, S.A.;
MAKSIMOV, S.K.

Mechanical properties of statically and dynamically deformed alloys. Fiz. met. i metalloved. 15 No.2:305-309 F '63.
(MIRA 16:4)

1. Tul'skiy mekhanicheskiy institut.
(Alloys—Testing)

[illegible]

[illegible]

[illegible]

[illegible]

KRISHTAL, Mikhail Aronovich; PIGUZOV, Yuriy Vasil'yevich; GOLOVIN
Stanislav Alekseyevich; GARBER, R.I., prof., retsenzent

[Internal friction in metals and alloys] Vnutrennee trenie
v metallakh i splavakh. Moskva, Izd-vo Metallurgiia, 1964.
245 p. (MIRA 17:6)

ACC NR: AR6035428 SOURCE CODE: UR/0137/66/000/009/I076/I076

AUTHOR: Golovin, S. A.; Mokrov, A. P.; Shishkhanov, T. S.; Zapol', Yu. N.

TITLE: Study of physical and mechanical properties of deformed and annealed molybdenum

SOURCE: Ref. zh. Metallurgiya, Abs. 9I513

REF SOURCE: Sb. Proiz-vo stali i splavov i vliyaniye obrabotki na ikh svoystva. Tula, 1965, 36-41

TOPIC TAGS: molybdenum, metal deformation, annealing, x ray scattering, metal rolling, crack propagation, metal hardening, metal aging, metal recrystallization

ABSTRACT: The authors studied the change in the microstructure, the mechanical (σ_b, H_B, δ) and physical properties (distortions of the second kind $\Delta a/a$ in the [100] direction, and dimensions of the regions of coherent scattering of x rays) of molybdenum as a function of the annealing temperature (300 - 1100°) at different rolling thicknesses (1.2 and 6 mm). At the instant of deformation by rolling, large microstresses develop, the magnitude of which in strongly deformed regions can exceed the σ_b of the material. The microcracks or microscopic incipient cracks which are produced in this manner can be one of the causes of the stratification of the rolled section. With increasing annealing temperature of the deformed molybdenum, hardening of the metal is observed in the interval 400 - 500° and is attributed to the deformation aging. Above ~600°, up to the recrystallization temperature, intense weakening is observed. With decreasing thickness of the rolled section, the temperature of the recrystallization drops (from

Card 1/2 UDC: 669.28: 620.17

ACC NR: AR6035428

1000 to 850°). In the recrystallized molybdenum, one observes separation of brittle phases which apparently are compounds of the impurities (C, N) with the molybdenum. The presence of such phases can also lead to microscopic incipient cracks during the process of hot rolling of the sheet, owing to the unequal coefficient of thermal expansion of the matrix and of the phase. I. Tulupova [Translation of abstract]

SUB CODE: 11

Card 2/2

[illegible]

ACC NR: [illegible] (N) SOURCE CODE: UR/0126/66/021/001/0083/0091

AUTHOR: [illegible], M. A.; [illegible] A.; [illegible]al'skiy, S. I.

ORG: [illegible] Polytechnic Institute ([illegible] politekhnicheskiy institut)

TITLE: Determining the characteristics of dislocation structure by the internal-friction method

SOURCE: Fizika metallov i metallovedeniye, v. 21, no. 1, 1966, 83-91

TOPIC TAGS: crystal lattice dislocation, internal friction, torsional vibration, iron

ABSTRACT: The authors [illegible] the parameters of the dislocation structure (the energy of the bonding between the dislocation line and point defects and the nodes of the dislocation network, the length of dislocation segments, and the dislocation density) according to the [illegible] of the amplitude dependence of the damping of torsional vibrations in metals with [illegible] cubic lattice (work-hardened Fe and Mo) [illegible] the suspension system is excited by means [illegible] with two illumination systems serve to [illegible] record the damping vibrations of the specimen by means of photographic attachment and to visually determine the decrement. The damping of vibrations is determined [illegible] at the same time successively increasing the level of the stresses applied and measuring the internal-friction background. The critical deformation

Card 1/2 UDC: 539.67

[illegible]-66

ACC NR: AP6005140

[illegible] associated with [illegible] changes in the mechanism of energy dissipation in the [illegible] at various amplitudes [illegible] (Lamb) and on this basis [illegible] of [illegible] dependence [illegible]. With the aid of the formulas of [illegible] (20, 27, 205 and 789), the parameters of the [illegible] energy of bonding between [illegible] on the basis of a calculation [illegible] impurity atoms on taking into [illegible] data show that dislocation density [illegible] from [illegible] to [illegible] 10 [illegible] cm-2 and following a 11.2% [illegible] the length of the dislocation segment [illegible] energy of bonding between dislocations and [illegible] 0.23 ev after its 11% deformation [illegible] characteristics of dislocation structure [illegible] figures, 2 tables, 13 formulas.

SUB CODE: 11, 13, 20/ SUBM DATE: [illegible]65/ ORIG REF: 005/ OTH REF: 008

Card 2/2

GOLOVIN, S.A.; BELKIN, K.N.

Internal friction in plastically deformed austenitic steel. Fiz.-met. i metalloved. 20 no.5:763-769 N '65. (MIRA 18:12)

1. Tul'skiy politekhnicheskiy institut. Submitted November 2, 1964.

L 15090-66 EWT(m)/EWP(w)/EWA(d)/T/EWP(t)/EWP(k)/EWP(z)/EWP(b) IJP(c)
ACC NR: AP5028565 (N) JD/HW/EM SOURCE CODE: UR/0126/65/020/005/0763/0769

AUTHOR: Golovin, S. A.; Belkin, K. M.

101

ORG: Tula Polytechnic Institute (Tul'skiy politekhnicheskiy institut)

96
B

TITLE: Internal friction resulting from the plastic deformation of austenitic steels

SOURCE: Fizika metallov i metallovedeniye, v. 20, no. 5, 1965, 763-769

TOPIC TAGS: austenite steel, internal friction, temperature dependence, plastic deformation, relaxation process, metal physics, activation energy

ABSTRACT: Relaxation processes were studied in 1Kh18N9 and 1Kh18N10T Cr-Ni stainless steels. The temperature dependence of internal friction was obtained for plastically deformed 1Kh18N9 and for the 1Kh18N10T titanium bearing. Wire samples were used in a vacuum torsional pendulum at 1 cycle/sec at an amplitude of less than 10^{-5}. Annealing of the quenched samples was done in vacuo for 8-10 min, while plastic deformation was imparted by wire drawing (15 to 82%); 5% deformation was obtained by tension alone. The chemical compositions of the steels are listed below:

Card 1/3 UDC: 669.15 : 539.67

2

L 14996-66

ACC NR: AP5028565

5

Grade of steel	Chemical composition, wt %					
	C	Cr	Ni	Ti	Mn	Si
1X18H9	0,12	17,44	8,76	—	1,46	0,46
1X18H9T	0,10	18,9	10,8	0,51	1,8	0,79

Data are given for the temperature dependence of internal friction for specimens quenched from 925°, 1075° and 1150°C. After annealing (200° to 400°C), 1Kh18N9 steel showed a sharp decrease in background for quenching from 1075°C and 27% deformation. The anomalous damping at 80-100°C was also reduced in intensity. A phasometer was used to measure the amount of α-phase in 1Kh18N9 after deformation and annealing; the amount increased with deformation but annealing did not influence the quantity of α-phase in the steel. The occurrence of the 320°C peak was attributed to the presence of carbon and nitrogen. The effect of plastic deformation was to introduce dislocations which interacted with the interstitial atoms C and N;

Card 2/3

L [illegible]-66
ACC NR: AP502[illegible]

0

[illegible] 27% [illegible] the density of dislocations rose so high that the background in- [illegible] with the interstitials, the Ti [illegible] [illegible] between this and the 200°C peak in [illegible] increased with deformation for [illegible] [illegible] affects the relaxation was also [illegible] [illegible] 37 ± 2 kcal/mol as determined [illegible] influence, Ti raised the 100°C [illegible] [illegible] figures, 2 tables.

SUB CODE: 11,20/ SUBM DATE: [illegible]/ ORIG REF: 008/ OTH REF: 006

OC

Card 2/2

L 40060-66 EWT(m)/T/EWP(w)/EWP(t)/ETI IJP(c) JH/JD/HW/JG

ACC NR: AP6016582 (A) SOURCE CODE: UR/0129/66/000/005/0009/0012

57
55
B

AUTHORS: Golovin, S. A.; Arkhangel'skiy, S. I.

ORG: Tula Polytechnical Institute (Tul'skiy politeknicheskiy institut)

TITLE: Damping of vibrations in various metals 16

SOURCE: Metallovedeniye i termicheskaya obrabotka metallov, no. 5, 1966, 9-12

TOPIC TAGS: metallography, vibration damping, metal friction, internal friction

ABSTRACT: A study was made of the vibration amplitude dependence of internal friction in metals having a particular type of lattice structure. Measurements were conducted on machinery equipped with a torsional pendulum; small amplitudes were observed visually on the relaxer RKF MIS, and larger amplitudes were recorded with the aid of an optical system. Auxiliary instrumentation included a Feppel-Perts device and oscillograph equipment. Certain aspects of the experimental measurements are described by M. A. Krishtal, S. A. Golovin, and S. I. Arkhangel'skiy (FMM, 1966, t. 21, vyp. 1) and by Yu. K. Favetov (Zavodskaya laboratoriya, 1959, No. 5). Measurements were made of the amplitude variation of the vibration decrement with internal friction in aluminum specimens of varied purity. Parameters in these tests were temperature and metallographic process. Annealed metals (zinc, 17 nickel, aluminum, 17 copper, 17 iron, 17 titanium, 17 and molybdenum) 17 were tested for the temperature-amplitude

UDC: 620.18:539.67

Card 1/2

L 40060-66
ACC NR: AP6016582

2

decrement variation. Other tests gave data on the amplitude variation at homological temperatures and stresses. A constant magnetic field was applied to nickel and steel specimens. The results of the amplitude variations with selected values of field intensity are shown in Fig. 1.

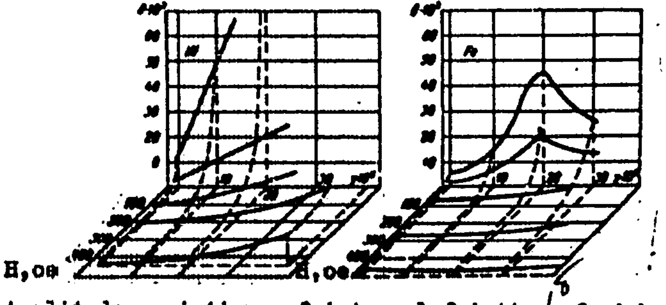

Fig. 1. Amplitude variations of internal friction of nickel and steel in constant magnetic fields of varied intensity. 27

Orig. art. has: 4 figures.

SUB CODE: 11/ SUBM DATE: none/ ORIG REF: 007/ OTH REF: 003

L 09301-67 EWP(k)/EWT(m)/EWP(t)/ETI IJP(c) JW/JD/HW/GD
ACC NR: AT6026913 (A) SOURCE CODE: UR/0000/66/000/000/0082/0085

93
80

AUTHOR: Golovin, S. A.; Belkin, K. N.; Drapkin, B. M.

ORG: None

16

TITLE: Internal friction in austenitic steels

SOURCE: AN SSSR. Institut metallurgii. Vnutrenneye treniye v metallakh i splavakh (Internal friction in metals and alloys). Moscow, Izd-vo Nauka, 1966, 82-85

TOPIC TAGS: internal friction, austenite steel, low frequency, carburization, plastic deformation, temperature dependence/Kh18N9 steel

ABSTRACT: Internal friction (Q^{-1}) as a function of temperature was studied for certain austenitic steels (see table) with low-frequency (~1 cycle) measurements being made using wire specimens 160 mm long and 0.8 mm in diameter and an RKF MIS vacuum torsion pendulum. Samples 200 mm long and 6-8 mm in diameter were investigated at 750-850 cycles. Annealing and heating was done in a vacuum of 10^{-3} torr; carburization was carried out in benzene vapors at 1,000°C for 1.5 hours.

Mark steel	Chemical composition, weight in %						
	C	Cr	Ni	Mn	Si	Al	S and P
Kh18N9	0.12	17.44	8.75	1.46	0.46		~0.01
45G17Yu3	0.49	0.24	-	17.45	0.18	2.76	~0.01

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L 09301-67

ACC NR: AT6026913

10 3

The formation of an internal friction maximum at 300°C in plastically deformed austenitic steels of the marks indicated can be associated with the migration of atoms of carbon in the austenite, and with the reaction of the latter with dislocations in the solid solution under the action of a variable-sign stress field. The author's opinion is that the low-temperature maximum is associated with migration of carbon in solid solution into the stress field, and the high-temperature one is linked with the reaction of interstitial atoms with dislocations at periodic vibrations of the system. For Kh18N9 steel relaxation in the region of the high-temperature branch of Q^{-1} (375-400°C) is caused by migration of interstitial atoms in the austenite into positions of the carbide-forming elements. The low temperature portion of the maximum relates to a relaxation process associated with the influence of plastic deformation. Orig. art. has: 2 formulas, 1 table, and 5 figures.

SUB CODE: 11 / SUBM DATE: 02 Apr 66/ ORIG REF: 005/ OTH REF: 001

Card 2/2

ACC NR: AR7004682 SOURCE CODE: UR/0277/66/000/010/0019/0019

AUTHOR: Golovin, S. A.; Mokrov, A. P.; Shishkhanov, T. S.; Zapol', Yu. N.

TITLE: Study of the physical and mechanical properties of formed and annealed molybdenum

SOURCE: Ref. zh. Mashinostroitel'nyye materialy, konstruktsii i raschet detaley mashin. Gidroprivod. Abs. 10.48.116

REF SOURCE: Sb. Proiz-vo stali i splavov i vliyaniye obrabotki na ikh svoystva. Tula, 1965, 36-41.

TOPIC TAGS: molybdenum, metal physical property, molybdenum micro structure, molybdenum physical property, molybdenum mechanical property

ABSTRACT: Changes in the microstructure, physical and mechanical properties ([illegible] 33, 6) of molybdenum as a function of annealing temperature ranging from 300 to 1100 C were studied for various gages of rolled material (1.2 and 6 mm). There are five illustrations and a bibliography of 3 titles. [DW]
[Translation of abstract]

SUB CODE: 13/

Card 1/1 UDC: 669.28

ACC NR: AR7005972 SOURCE CODE: UR/0277/66/000/011/0025/0025

AUTHOR: Golovin, S. A.; Baranova, V. I.; Kudinova, K. O.

TITLE: Relaxation and elastic characteristics of molybdenum

SOURCE: Ref. zh. Mashinostroitel'nyye materialy, konstruktsii i raschet detaley mashin. Gidroprivod, Abs. 11.48.161

REF SOURCE: Sb. Proiz-vo stali i splavov i vliyaniye obrabotki na ikh svoystva. Tula, 1965, 42-49

TOPIC TAGS: molybdenum, elasticity, relaxation process, metal deformation

ABSTRACT: The authors study the effects which refining conditions, deformation and annealing parameters have on the relaxation and elastic characteristics of molybdenum. An EKFMIS vacuum-tube relaxation oscillator was used for measuring internal friction and the square of the frequency of torsional vibrations as functions of temperature at a frequency of ~1 cps on a specimen 150 mm long and 1 mm in diameter. Deformation amplitude was $<10^{-6}$. Several maxima were observed on the curve for internal friction of molybdenum as a function of temperature in the regions from 40 to 80°C and from 120 to 180°C. The attenuation maxima on the temperature curve for internal friction in the regions from 40 to 80°C and from 120 to 180°C decreased as the annealing tempera-

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ACC NR: AR7005972

ture was raised to 400°C, and disappeared completely at temperatures from 400 to 700°C. The background and the amplitude of these peaks increased at 800°C due to recrystallization processes. All groups of molybdenum specimens showed an increase in the square of the frequency of torsional vibrations as the annealing temperature was raised, and a linear reduction in this parameter with heating to 400°C. 4 illustrations, 1 table. [Translation of abstract]

SUB CODE: 20, 11

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Met. Abs
V. 9

18 Working

"The Effect of Individual Factors in Punch and Die Blanking on the Forces Required for Blanking, Stripping, Pushing Blank Through Die, &c. N. M. [illegible] and F. Z. Kvasnikov (*Tsvet. Metally* (*Non-Ferrous Metals*), 1938, (1), 71-80). [In Russian.] The forces required in the various stages of the punch and die blanking of 70-mm.-diam. circular blanks were measured for a large number of ferrous and non-ferrous metals and alloys in sheet form. The punch diameter was in all cases 70 mm., the punch-die clearance being varied by using die diameters of from 70·15 to [illegible] mm. Two types of die were employed, one with conically tapered opening and the other with a combined cylindrical and tapered internal surface. Using an Amsler press, arrangements were made to measure the force on the punch during its penetration into the sheet, the force required to push the cut blank out through the die, and the force required to strip the blanked sheet from the punch. In addition, the effect of die clearance on the appearance of the cut edge and on the grain of the metal adjoining the cut edge was studied. It was found that the force required for blanking is somewhat less than that which would have been expected from the value of the ultimate tensile strength. The depth to which the punch penetrates into the sheet before shearing commences corresponds to the reduction in area in the tensile test. Cutting of the sheet is possible at much larger die clearances (up to 100% of the thickness of the sheet) than has been stated by German investigators. An increase in the die clearance generally reduces the cutting force (5-10%). The depth of metal adjoining the cut edge affected by the cutting operation depends on the metal, the sheet thickness, and the die clearance, increasing with the latter, and was found to vary between 26 and 110% of the sheet thickness. The cutting force relative to the total thickness decreases when a number of sheets of the same metal are blanked simultaneously. When blanking simultaneously sheets of different metals, the value of the cutting force depends on the relative position of the sheets of the different metals. The force required to push blanks through dies of the first type decreases as the pushing proceeds, but remains more or less constant in dies of the second type. In the latter, the force required to push through several blanks at the same time, as happens in practice, may be quite appreciable. The force required to strip the punched sheet from the punch was found to depend on the metal, the sheet thickness, and the die clearance. —A. R.

PROCESSES AND PROPERTIES INDEX

M

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"Method of Investigating the Susceptibility of Metals to Plastic Working by the Blanking Method. S. M. [illegible] and F. Z. [illegible] (*Tsvet. Metally* (*Non-Ferrous Metals*), [illegible], (8), [illegible].—[In Russian.] It was shown that in several cases the method of studying the behaviour of a metal during the blanking operation, using a die and punch, gave more variable results from the point of view of determining the plastic workability of the particular metal than did the tensile test. Curves obtained in the tensile test and the blanking test are identical. The clearance between the die and the punch may vary between 7·5 and 15% of the thickness of the material without affecting the true stress curves. These curves, as well as the necking curves, are independent of the thickness of the material and depend only on its condition. The experiments described were carried out on copper and aluminium.—N. A.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

PROCESSES AND PROPERTIES INDEX

Greases for aluminum rolling. [illegible], A. K. Chertovskikh and P. M. Pol'kin. [illegible] 1953, No. 10, 39-43. Disks made of com. Al, analyzing 0.25-0.30% Fe and 0.17-0.20% Si, were used in a series of rolling tests on dies, the relative properties of various greases in regard to their lubricating effect on rolling, their effect on corrosion of the Al and ease and completeness of their removal by heating the metal to 250-300°.

Among the lubricants studied were alc., machine oil, linseed oil, transformer oil, kerosene and petroleum jelly. For a reduction of 70% at an initial pressure of 15 kg. per sq. cm., most of the lubricants tested gave satisfactory results; however, the best results, on the basis of pressure required for a given reduction, were obtained with machine oil and mixts. contg. 20-25% petroleum + 75-80% petroleum jelly, 30% transformer oil + 70% machine oil; and 40% linseed oil + 60% machine oil. For 60% reduction at a pressure of 15 kg. per sq. cm. the best results were obtained with linseed oil, machine oil, emulsol and mixts. contg. 40% linseed oil + 60% machine oil; 10-25% petroleum jelly + 75-90% petroleum; and 20% oleic acid + 80% transformer oil. In regard to ease of removal of lubricant on heating, vegetable oils and emulsol were not satisfactory, as they gave a dark, spotted, adhering coat. Petroleum jelly, transformer oil and mixts. of petroleum jelly + petroleum (less than 40%) and of transformer oil + machine oil (less than 30%) gave good results and kerosene gave excellent results. Al samples covered with mineral oils and kept for 30 days in air or air satd. with moisture did not corrode. Under similar conditions, vegetable oils and emulsol did not prevent corrosion. 9 references

S. L. Madorsky

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

M.a.

18

The Production of Hollow Cylindrical Bodies (from Non-Ferrous Metals) by Cold Pressing. S. M. Gubkin and F. Z. Kvantsev [illegible] (*Met. Ind. Herald*), 1939, 19, (3), 63-67.—(In Russian.) A short review of foreign literature. 12 references.—N. B. V.

1943

S. M. Golovin

Ivanov, A. I.

SOV/154-58-2-16/22

AUTHOR: Bol'shakov, V. D., Candidate of Technical Sciences

TITLE: Scientific and Technical Conference of MIIGA i K (Nauchno-tekhnicheskaya konferentsiya MIIGA i K) I

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Geodeziya i aerofotos"yemka, 1958, Nr 2, pp 111-114 (USSR)

ABSTRACT: From April 24 to 26 a scientific and technical conference of the MIIGA i K (Institute of Geodesy, Aerophotography, and Cartography, Moscow) was held in Moscow. Furthermore, there were four sections in operation: on geodesy, aerophotogeodesy, cartography, and on the production of photogrammetrical instruments. More than 300 delegates from 45 institutes took part in the conference at which 28 lectures were given. 20 delegates participated in the discussions. The opening speech was made by the Director of the MIIGA i K, Professor P. S. Zakatov, Doctor of Technical Sciences. The first paper read was that by A. I. Ivanov on "The Fight Against Revisionism." A. I. Durnev, Professor, Doctor of Technical Sciences, spoke on "The Setup and the Levelling Principles of the Geodetic Basis Network of the USSR." A. M. Virovets, Professor, read a paper on "The Elaboration of Equiangular Coordinates in Some Kinds of Geodetical Networks (on the Basis of the Data Directly Measured in the Ellipsoid)." M. S. Murav'yev, Docent: "On a Bench Mark of Special Stability." V. G. Selikhanovich, Docent, Candidate of Technical Sciences: "The Life and Scientific Work of A. P. Bolotov." V. D. Bol'shakov: "Optical Measurements of Distances Under Precise Conditions." N. V. Yakovlev, Assistant: "On the Methodology of High-Precision Goniometry in First-Class Triangulations I." N. Ya. Bobir: "On the Problem of Determining Some Elements of Inner Orientation of Wide-Angle and Super-Wide Angle Aerial Cameras." A. K. Pyvnev, Graduate Student: "On a Level Device With a Freely Suspended Reflector." A. D. Dmitriyev reported on "Geodesy and Cartography at the Beginning of the Soviet Rule." Ye. P. Arzhanov on "An Investigation of the Film Smoothing Device With Supporting Rollers." L. N. Vasil'yev, Graduate Student: "Stereocomparator With Electrical Corrections." V. Ya. Mikhaylov, Docent, Candidate of Technical Sciences: "On the Change of Scale of Aerial Photographs Resulting From Enlargement." P. V. Zakharov: "On the Distinctive Capabilities of Black-and-White and Color Photographs." Yu. N. Kuznetsov, Graduate Student: "The Elements of the Theory of a New High-Speed Shutter." I. G. Syrkin, Professor: "The Present State of Physical-Mathematical Knowledge on the Precise Functioning of Measuring Tools." S. M. Golovin: "Speeding up and Improving the Production of Measuring Tools." L. A. Malkin, Docent, Candidate of Technical Sciences: "On Instruments for the Precise Measurement of Distances." V. S. Mikheyshev, Assistant: "Field Tests With the Optical Range Finder CBB-1." V. S. Usov, Assistant: "On the Study of Inaccuracies in the Focussing Devices of Telescopes." N. M. Volkov, Professor, Doctor of Geographical Sciences: "Some Remarks on Engraving in the Production Process of Original Maps."

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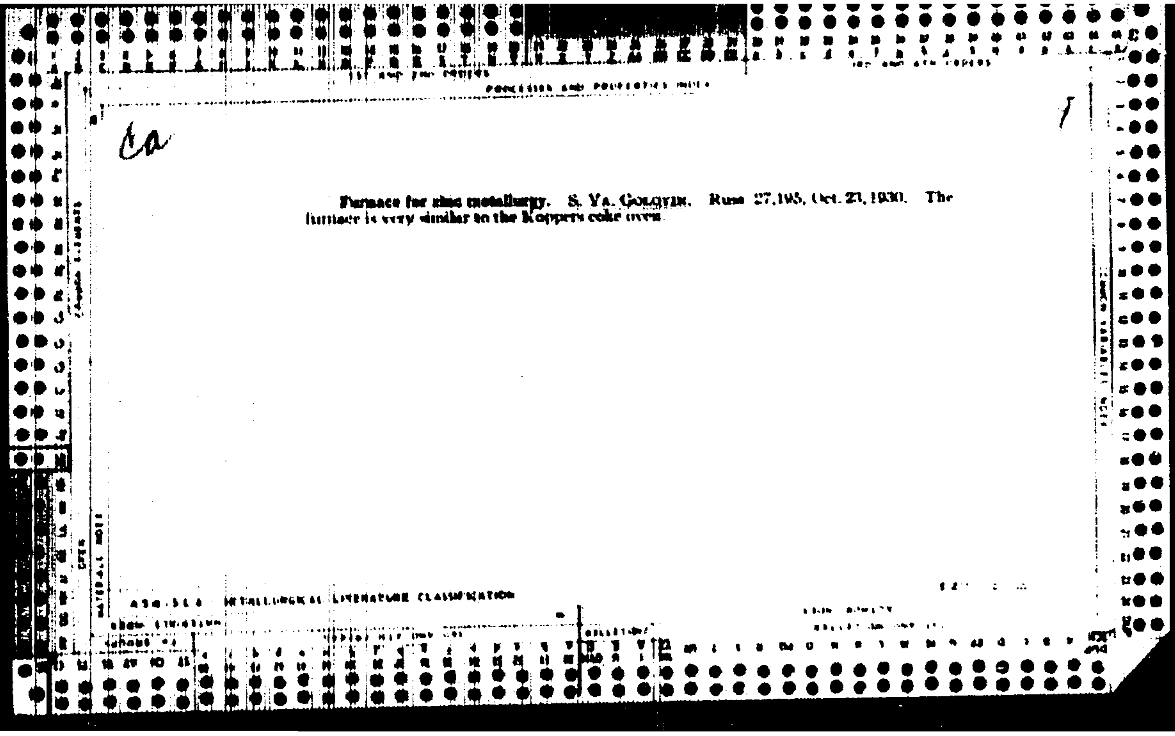
GOLOVIN, S. M., Docent

"Accelerating the Production Preparations of New Products and Reducing Their Costs".

report presented at a Scientific-Technical Conference at Moscow Inst. of Geodesy, Aerial Photography and Cartography Engineers, 24-26 April 1958.
(Geodeziya i kartografiya, no. 6, pp. 79-80, 1958)

PESHKOV, Yevgeniy Onisimovich; GOLOVIN, S.M., kand. tekhn. nauk,
retsenzent; LESNICHENKO, I.I., red. izd-va; GORDEYEVA, L.P.,
tekhn. red.; SMIRNOVA, G.V., tekhn. red.

[Adjustment of turret lathes]Naladka tokarno-revol'vernykh
stankov. Moskva, Mashgiz, 1962. 159 p. (MIRA 15:9)
(Lathes—Maintenance and repair)



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PROCESSES AND PROPERTIES INDEX

Furnace for zinc metallurgy. S. Ya. Golgvin. Russ 27,195, Oct. 23, 1930. The furnace is very similar to the Koppers coke oven.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

GOLOVIN, S.Ya.

CHUNAYEV, N.V., kandidat tekhnicheskikh nauk; KONSTANTINOV, L.S., kandidat tekhnicheskikh nauk, retsenzent; GOLOVIN, S.Ya., inzhener, redaktor literatury po tyazhelomu mashinostroyeniyu; MATVEYEVA, Ye.N., tekhnicheskiy redaktor.

[Lubrication of foundry equipment] Smazka oborudovaniia liteinykh tsekhov. Moskva, Gos.nauchno-tekhn.izd-vo mashinostroit. lit-ry, 1952. 91 p. [Microfilm] (MLRA 7:10)
(Foundries) (Lubrication and lubricants)

UMNYAGIN, M.G., inzhener, laureat Stalinskoy premii, redaktor; GOLOVIN,
B.Ya., inzhener, redaktor.

[Improving the technology of repair work; from work practice in plants of the heavy machine industry] Usovershenstvovanie tekhnologii remontnykh rabot. Iz opyta raboty zavodov tiazhelogo mashinostroeniia. Pod red. M.G.Umniagina. Moskva, Gos. nauchno-tekhn. izd-vo mashinostroit.i sudostroit. lit-ry, 1953. 19 p. (MLRA 7:4)

1. Moscow. Gosudarstvennyy soyuznyy institut Orgtyazhmash.
(Machinery--Maintenance and repair)

PETRENKO, O.S.; ANDREYEV, K.I., inzhener, redaktor; GOLOVIN, S.Ya., inzhener, redaktor.

[Factory overhead conveyers] Podvesnoi vnutrizavodskii transport. Izd. 2., perer. i dop. Moskva, Gos. nauchno-tekhn. izd-vo mashinostroit. lit-ry, 1953. 382 p. (MLRA 7:1)
(Conveying machinery) (Factories--Equipment and supplies)

ROTENBERG, M.I.; MEL'NIKOVA, Ye.A.; POLYAKOV, Ya.G., inzhener, redaktor; GOLOVIN, S.Ya., inzhener, redaktor; TIKHONOV, A.Ya., tekhnicheskiy redaktor.

[Mastering the casting of crankshafts from spheroidal graphite iron] Osvoenie otlivki kolenchatykh valov iz chuguna so sferoidal'nym grafitom. Moskva, Gos.nauchno.-tekhn. izd-vo mashinostroit. i sudostroit. lit-ry, 1954. 16 p. (Moscow. Vsesoiuznyi proektno-tekhnologicheskii institut. Obmen tekhnicheskim opytom, no.13)
(MLRA 9:8)

(Cranks and crankshafts) (Founding)

GOLOVIN, S. YA.

UMNYAGIN, M.G., laureat Stalinskoy premii, redaktor; GOLOVIN, S.Ya., inzhener, redaktor; TIKHONOV, A.Ya., tekhnicheskiy redaktor

[Improving the quality of cast parts; work practice of heavy-machinery construction factories] Uluchshenie kachestva litykh detalei; iz opyta zavodov tiazhelogo mashinostroeniia. Pod red. M.G.Umniagina. Moskva, Gos. nauchno-tekhn. izd-vo mashinostroit. i sudostroit. lit-ry, 1954. 32 p. (MLRA 7:10)

1. Moscow. Vsesoyuznyy proyektno-tekhnologicheskiy institut VPTI. (Founding)

SOKOLOVA, V.A., kandidat tekhnicheskikh nauk; KRYLOV, V.I., inzhener, redaktor; GOLOVKIN, S.Ya., inzhener, zav. redaktsiyey; MATVEYEVA, Ye.N., tekhnicheskiy redaktor.

[Oil-less foundry sand binders] Bezmaslianye liteinye krepiteli. Moskva, Gos. nauchno-tekhn. izd-vo mashinostroit. lit-ry, 1954. 89 p. [Microfilm] (MLRA 8:2)
(Sand, Foundry) (Foundry machinery and supplies)

GIDON, L.M.; ADRIANOV, V.P., inzhener, redaktor; POPOVA, S.M., tekhnicheskiy redaktor; TIKHONOV, A.Ya., tekhnicheskiy redaktor; GOLOVIN, S.Ya., inzhener.

[Assembly and repair of steam engines] Montazh i remont lokomobilei. Moskva, Gos. nauchno-tekhn. izd-vo mashinostroit. lit-ry, 1954. 309 p. [Microfilm] (MIRA 8:2)

1. Zaveduyushchiy redaktsiyey literatury po tyazhelomu mashinostroyeniyu (for Golovin).
(Steam engines)

MOROZOV, B.A., kandidat tekhnicheskikh nauk; GOLOVIN, S.Ya., inzhener,
zav. redaktsiyey; POPOVA, S.M., tekhnicheskiy redaktor.

Survey of metallurgical equipment. Nauchno-tekhnicheskaia
informatsiia no.21: 3-46 '54. (MLRA 7:11)
(Metallurgy--Apparatus and supplies)

KRYLOV, V.I., inzhener, redaktor; GOLOVIN, S. Ya., inzhener, redaktor;
UVAROVA, A.F., tekhnicheskiy redaktor

[Improvements in foundry practice] Usovershenstvovaniia v liteinom proizvodstve. Moskva, Gos.nauchno-tekhn.izd-vo mashinostroit. lit-ry, 1955. 17 p. (MLRA 8:10)

1. Moscow. Vsesoyuznyy proyektno-tekhnologicheskiy institut.
(Founding)

GOLOVIN

KRYLOV, V.I., inzhener, redaktor; GOLOVIN, S.Ya., inzhener, redaktor;
UVAROVA, A.F., tekhnicheskiy redaktor.

[Quick-drying liquid glass mixtures for casting shaped steel; from practices of the Neva Machine-Building Plant] Bystrosokhnushchie smesi na zhidkom stekle dlia fasonnogo stal'nogo lit'ia; iz opyta nevskogo mashinostroitel'nogo zavoda imeni Lenina. Moskva, Gos.nauchno-tekhn.izd-vo mashinostroit.lit-ry, 1955. 20 p.
(Leningrad Province - Steel castings) (MLRA 8:11)

GOLOVIN, S. YA.

TEREKHOV, A.P.; POLYAKEVICH, V.G.; ZHARNITSKIY, M.I., inzhener, retsenzent; GOLOVIN, S.Ya., inzhener, redaktor; MATVEYEVA, L.S., redaktor; UVAROVA, A.F., tekhnicheskiy redaktor.

[Planetary reducing gears with friction drive and ball bearings] Sharikovye planetarno-friktsionnye reduktory. Moskva, Gos.nauchno-tekhn.izd-vo mashinostroitel'noi lit-ry, 1955. 83 p.(MLRA 8:10)
(Gearing)

GOLOVIN, S. YA

IVANOV, G.B.; VOSHCHANOV, K.P., inzhener, retsenzent; KRYLOV, V.I. inzhener, redaktor; GOLOVIN, S.Ya., inzhener, redaktor; ZVEGINTSEVA, K.P., inzhener, redaktor; UVAROVA, A.F., tekhnicheskiy redaktor.

[Correcting defects in cast iron] Ispravlenie defektor chugunnogo lit'ia. Moskva, Gos.nauchno-tekhn.izd-vo mashinostroit.lit-ry, 1955. 121 p. (MLRA 8:11)

(Cast iron--Welding)

GOLOVIN, S.YA.

LIVSHITS, B.G., doktor tekhnicheskikh nauk, professor; PASTERNAK, N.A. inzhener, redaktor; GOLOVIN, S.Ya., inzhener, redaktor; POPOVA, S.M., tekhnicheskiy redaktor

[N.A. Minkevich, outstanding scientist and engineer] N.A. Minkevich-vydaiushchiisia uchenyi-inzhener. Moskva, Gos.nauchno-tekhn.izd-vo mashinostroit.lit-ry, 1955. 185 p. (MLRA 8:10)
(Minkevich, Nikolay Anatol'yevich, 1883-1942)

Golovin, S. Ya.

GOLOVIN, S.Ya.; YUDIN, S.T., redaktorp inzhener, POL'SKAYA, R.G., tekhnicheskiy redaktor.

[Founder's concise technological manual] Kratkii tekhnologicheskii spravochnik liteishchika. Moskva, Gos.nauchno-tekhn.izd-vo mashinostroitel'noi lit-ry, 1955. 239 p. (MLRA 8:12)
(Founding)

GOLOVIN, S.YA.

BRENUA, F.F., kandidat tekhnicheskikh nauk; VOL'PERT, G.D., inzhener.; YEMEL'YANOV, M.P., kandidat tekhnicheskikh nauk; KLEKOVKIN, G.P. inzhener; KUZMAK, Ye.M., doktor tekhnicheskikh nauk, professor; MILOVSKIY, I.A., laureat Stalinskoy premii;PANOV, B.N., inzhener; POKHODNYA, I.K., inzhener; FRUMIN, I.I., kandidat tekhnicheskikh nauk; FRUMIN, S.R., inzhener; ZVEGINTSEVA, K.V., inzhener, redaktor; GOLOVIN, S.Ya., inzhener, redaktor; MATVEYEVA, L.S., redaktor; SOKOLOVA, T.F., tekhnicheskiy redaktor.

[Automatic built-up welding with wear-resistant alloys] Avtomaticheskaia naplavka iznosoustoichivymi splavami. Moskva, Gos. nauchno-tekhn. izd-vo mashinostroit. lit-ry, 1955. 244 p. (MIRA 8:11)
(Electric welding)

[illegible]

LYUBAVSKIY, K.V., doktor tekhnicheskikh nauk, professor, redaktor;
GOLOVIN, S.Ya., inzhener, redaktor; CHERNYSHEVA, N.P.,
redaktor; MATVEYEVA, Ye.N., tekhnicheskiy redaktor

[New developments in welding technology] Novoe v tekhnologii
svarki. Moskva, Gos.nauchno-tekhn.izd-vo mashinostroit.lit-ry
1955. 246 p. (MLRA 8:10)
(Welding)